

## **Generation of a cold atom beam from a pyramidal magneto-optical trap**

J.L. Bliss, K.G. Libbrecht (California Institute of Technology, Pasadena, California 91125), J. Kohel, R.J. Thompson, D.J. Seidel, W.M. Klipstein, L. Maleki (Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California 91109)

We have built an atomic beam source utilizing a simple and robust design based on the pyramidal trap geometry of Kim et al. (Opt. Lett.22, 117 (1997)). Our design allows use of a single large diameter ( $\geq 20$  cm) laser beam to obtain large capture rates of atoms from a background vapor. A small (1~mm diameter) hole in the retro-optic at the apex of the pyramid provides an extraction column for the atoms. We have operated the apparatus both as a magneto-optical trap (using an auxiliary plug laser beam), and as a cold atomic beam source.

The characterization of this large pyramidal beam source will be reported, including an investigation of scaling to very large (10--20cm) high power (1~W) laser beams which should allow significant improvements in atomic beam flux.